

CLAIMS

1. A process for hydrocracking a hydrocarbon feedstock into a low aromatic content middle distillate in the presence of hydrogen comprising contacting the feedstock with a catalyst comprising a beta zeolite and a Y zeolite at elevated temperature and pressure, the Y zeolite having a unit cell size below 24.40 Å.
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- 10 2. The process of claim 1, wherein the Y zeolite has a unit cell size below 24.30 Å.
- 15 3. The process of claim 1, wherein the Y zeolite and/or the beta zeolite have been modified so as to have a silica-alumina ratio greater than that of the starting zeolites.
- 20 4. The process of claim 1, wherein the hydrocracking catalyst composition further comprises one or more hydrogenation components selected from nickel, cobalt, molybdenum, tungsten and chromium, their oxides and sulphides.
- 25 5. The process of claim 1, wherein the said catalyst composition further comprises at least one amorphous component selected from the group comprising silica, alumina, titania, zirconium and their binary and tertiary compounds.
- 30 6. The process of claim 1, wherein the silica-alumina ratio of the beta zeolite is at least about 100, preferably at least about 250.

7. The process of claim 1, wherein the silica-alumina ratio of the Y zeolites is at least 8, preferably at least about 15.

5 8. The process of claim 1, wherein the catalyst is in form of a physical mixture of beta zeolite and Y zeolite particles.

10 9. The process of any of the preceding claims, wherein the middle distillate product has a pour point lower than that of the same fraction contained in the feedstock.

15 10. The process of any of the above claims, wherein the middle distillate product has a content of aromatic compounds lower than the same fraction contained in the feedstock.

20 11. The process of any of the above claims in which the hydrocarbon feedstock has been subject to hydrotreating so as to reduce its organic nitrogen and sulphur content.

AMENDED CLAIMS

[received by the International Bureau on 23 November 2004 (23.11.2004);
original claims 1-11 replaced by amended claims 1-7 (2 pages)]

+STATEMENT

1. A process for hydrocracking a hydrocarbon feedstock into a low aromatic content middle distillate in the presence of hydrogen comprising contacting the feedstock with a catalyst comprising a beta zeolite and a Y zeolite at elevated temperature and pressure of 260-430°C and 5-20MPa, the Y zeolite having a unit cell size below 24.40 Å and a molar $\text{SiO}_2:\text{Al}_2\text{O}_3$ ratio of at least 15, the beta zeolite having a silica-aluminia ratio of at least about 250.
2. The process of claim 1, wherein the Y zeolite has a unit cell size below 24.30 Å.
3. The process of claim 1, wherein the hydrocracking catalyst composition further comprises one or more hydrogenation components selected from nickel, cobalt, molybdenum, tungsten and chromium, their oxides and sulphides.
4. The process of claim 3 wherein the hydrogenation component is selected from nickel and tungsten, their oxides and sulphides.
5. The process of claim 1, wherein the said catalyst composition further comprises at least one amorphous component selected from the group comprising silica, alumina, titania, zirconium and their binary and tertiary compounds.

6. The process of claim 1, wherein the catalyst is in form of a physical mixture of beta zeolite and Y zeolite particles.
7. The process of any of the above claims in which the hydrocarbon feedstock has been subjected to hydrotreating so as to reduce its organic nitrogen and sulphur content.

Statement under Article 19(1) PCT

Please find enclosed replacement pages 36 and 37 with amendments to claims filed with our application dated 11 June 2004 for further consideration under the preliminary examination procedure.

Claim 1 has been amended by restricting the Y zeolite to having a molar $\text{SiO}_2:\text{Al}_2\text{O}_3$ ratio of at least 15. Basis for this amendment is found on page 11, lines 14-16 of the description and claim 7 as originally filed. Claim 1 has been further amended by restricting the silica alumina ratio of the beta zeolite to at least about 250. Basis for this amendment is found in claim 6 as originally filed. Furthermore, in claim 1 the temperature and pressure at which the hydrocracking process occurs have been defined according to the preferred conditions given in Table 1 of the application.

New claim 4 referring to the hydrogenation components being nickel and tungsten has been added. Basis for this new claim is found in examples 1 to 7 of the description.